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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,731	08/31/2001	Susumu Takahashi	1186.1019	8415

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EXAMINER

RAO, SHRINIVAS H

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 10/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/942,731		TAKAHASHI ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Steven H. Rao		2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9,10,12-21,23-28,41,42,45-53 and 56-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 9,10,12-21,23-28,41,42,45-53 and 56-61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                                  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____   |

### **DETAILED ACTION**

Receipt is acknowledged of paper submitted under 37 CFR 1.114 and 35 U.S.C. 119 (a)-(d), claiming priority from U.S. Serial No. 091942,731 filed on August 31, 2001 which itself claims priority from Japanese Patent Application Nos. 11-297045(10/1911999), 2000-226780 (07/2912000), 2000-264438 (0813112000), which papers have been placed of record in the file.

### **Continued Prosecution Application**

The request filed on July 26, 2006 for a request for Continued Examination Application (RCE) under 37 CFR 1.114(d) based on parent Application No. 09/942,731 is acceptable and a RCE has been established. An action on the RCE follows.

### ***Preliminary Amendment Status***

Acknowledged is made of preliminary amendment filed on July 26, 2006 has been entered on August 2, 2006.

Therefore claims 9, 20, 41, 52 and 61 as amended by the amendment and claims 2- 8,10, 12-19,21, 23-28,42, 44-51, 53 and 56-60 as recited in the amendment are currently pending in the Application.

Claims 11,22,43 and 54 have been cancelled. Claims 29-40,43-44 and 54-55 were previously cancelled.

### ***Claim Rejections - 35USC Section 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action.

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-10,12-28,41-42,45-53 and 56-61 are rejected under 35 U.S.C. 103(a) as being obvious over Tanabe et al. ( U.S. Patent No. 6,118,586 herein after Tanabe) previously applied and further in view of Japanese Utility Model No. 258847 (LGZ Landis, herein after Landis) (for Applicants' convenience U.S Patent Pub. No. 2003/0151784, wherein English translation of relevant portions of Landis is enclosed e.g. para 0007 ) as previously applied and further in view of Ogawa et al. ( U.S. Patent No. 6,088,076, herein after Ogawa).

With respect to claims 9, 20 and 52 Tanabe describes a display device which comprises an array of pixels arranged in a matrix and forms an image to be displayed comprising an array of diffraction grating cells arranged in a matrix, ( col.2 lines 60-65, etc.) each cell comprising blazed type or binary type curved gratings., having the same profile and arranged in parallel ( Tanabe figures 2/3, etc. and Col. 10 lines 63 to 67). ( col. 5 line 30-34). ( LCD layer and display (c1.9) col.2 lines 56-62 and Col. 10 lines 63 to 67).

The limitation of wherein each side of each diffraction grating cell measures between

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about 5um to about 300 um is not specifically describes by Tanabe.

However Landis (Japanese Utility patent No. 258847)and ( 2003/151784, para 0007) describes a diffraction grating pattern of 0 to 300 um to provide micro-characters having desired properties including anti-counterfeiting means used in notes credit cards etc.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Landis (Japanese Patent No. 258847's) a diffraction grating pattern of 0 to 300 um( i.e wherein each side of each diffraction grating cell measures between about 5um to about 300 um) in Tanabe's device. The motivation to make the above combination is to provide micro-characters having desired properties including anti-counterfeiting means used in notes credit cards etc. ( JP '847 patent ).

The presently newly added limitation, "wherein said diffraction grating cells are located at positions corresponding to the pixels. " is not specifically mentioned by the above applied Tanabe or Landis references.

However, Ogawa, a patent from the same field of endeavor, describes in co1.4 lines 12 to 25 etc. wherein said diffraction grating cells are located at positions corresponding to the pixels to provide LCD which prevents color intensification and which accurately regenerates white, thus ensuring the display of good-quality color images with excellent color images with an excellent color balance.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include Ogawa's diffraction grating cells are located at positions

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corresponding to the pixels in Tanabe and Landis device. The motivation to make this combination is to provide LCD which prevents color intensification and which accurately regenerates white, thus ensuring the display of good-quality color images with excellent color images with an excellent color balance. ( Ogawa col.2 lines 15 to 25).

With respect to claims 10, 21, 42, 53 Tanabe describes the optical film according to claim 9, wherein said gratings of different grating cells contain different profiles. ( col. 5 lines 34-48 and Col. 10 lines 63 to 67).

With respect to claims 12, 23 Tanabe describes the optical film according to one of claims 9 wherein said gratings of each grating cells include at least two grating pitches ( col. 7 lines 17-30 and Col. 10 lines 63 to 67).

With respect to claims 13, 24, 45, 56 Tanabe describes the optical film according to claim 9, wherein an angle of a slope of the gratings of different grating cells is uniform. ( Tanabe figure 2 and Col. 10 lines 63 to 67).

With respect to claims 14, 46 Tanabe describes the optical film according to claim 9 wherein a surface of said diffraction grating cells of each of the grating cells is provided with a reflection layer. ( Figure 1 , 9 and Col. 10 lines 63 to 67).

With respect to claims 15, 47 Tanabe describes the optical film according to claim 9, wherein each of the gratings of each of the grating cells has a gentle slope and a steep slope in a cross section and a surface of the gentle slope is provided with a reflection layer. ( figures 2 and 3, and see above rejections and Col. 10 lines 63 to 67, see rejections under claims 19, 51 also).

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With respect to claims 16, 48 and 57 Tanabe describes the optical film according to claims 9, wherein fine rectangular or elliptic projections or recesses are formed on a surface of said diffraction grating cells with a short axis thereof agreeing with a direction of juxtaposition of said gratings. ( Tanabe col. 16 lines 23-35, and Tenantable figs. 2,3 and Col. 10 lines 63 to 67).

With respect to claims 17, 49, 58 Tanabe describes the display device according to one of claims 9 to 11, wherein said liquid crystal display layer comprises an array of pixels arranged in a matrix', and said diffraction grating cells and said array of pixels show a one-to-one correspondence. ( Tanabe example 8, col.16 lines 23-35 and Col. 10 lines 63 to 67).

With respect to claim 18 Tanabe describes the display device according to one of claims 9 to 11, wherein said liquid crystal display layer comprises array of pixels (Tanabe col. 6 line 62 to col. 7 line 6 and Col. 10 lines 63 to 67).

With respect to claims 27 and 59 Tanabe describes LCD layer having an array of pixels arranged in a matrix, and a pitch of arrangement of said array of diffraction grating cells is integer times of a pitch of arrangement of said pixels or vice versa. ( Tanabe col. 16 line 36 to 44 and Col. 10 lines 63 to 67).

With respect to claim 19, 51 Tanabe describes the display device according to claims 9 to 11, wherein the grating has a gentle slope and a steep slope in a cross section and the gentle slope is directed to above a display screen of said display device• ( Tanabe figures 2 to 6 etc. and Col. 10 lines 63 to 67).

With respect to claim 41 Tanabe describes a display device comprising : a liquid crystal display layer which comprises an array of pixels arranged in a matrix and which forms an image to be displayed', and a light reflecting optical film which is arranged on a rear surface of the liquid crystal display layer ( figures 4,5 etc.) and comprises an array of diffraction grating cells arranged in a matrix, each cell comprising curved gratings, having same profile and arranged in parallel ( col. 5 line 30-34). ( LCD layer and display (c1.9) co1.2 lines 56-62 and Col. 10 lines 63 to 67)wherein said gratings of each of the grating cells include at least two grating pitches. ( col. 10 lines 29 to 39 and Col. 10 lines 63 to 67) and wherein each side of each diffraction grating cell measures between about 5um to about 300 um ( rejected for reason set out under claims 1 and 20 above).

With respect to claim 50 Tanabe describes the display device according to one of claims 41 to 43, wherein said liquid crystal display layer comprises an array of pixels arranged in a matrix, and a pitch of arrangement, of said diffraction grating cells is integer times of a pitch of arrangement of said pixels or vice versa. ( col. 10 lines 29 to 39 and Col. 10 lines 63 to 67) of cross section and the gentle slope is directed to above a display screen of said display.

With respect to claim 60 Tanabe describes the display device according to one claims 52 to 54, wherein the grating has a gentle slop and a steep slope in a device. (Tanabe figure 6, col. 6 last line to col. 7 lines 1-2).

With respect to claim 61, Tanabe describes a display device including a liquid crystal display layer (Tanabe col.2 line 54) which comprises an ( sic any) array of pixels



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arranged in a matrix and forma an image to be displayed, a plurality of drive electrodes in proximity to the liquid crystal display layer ( assuming arguendo no new matter exists ) and a light reflecting optical film including a plurality of diffraction grating cells arranged in a matrix, each of the diffraction grating cells including at least one of a blazed type and a binary type grating, having the same profile and arranged in parallel ( Tanabe figures 2/3, etc. and Col. 10 lines 63 to 67). ( col. 5 line 30-34). ( LCD layer and display (c1.9) co1.2 lines 56-62 and Col. 10 lines 63 to 67) wherein the drive electrodes from the light reflecting optical film and wherein each of the drive electrodes includes one of the diffraction grating cells and wherein the drive electrodes form the light reflecting optical film, and wherein each of the drive electrodes includes one of the diffraction grating cells, wherein each side of each diffraction grating cell measures between about 5 pm and about 300 pm and wherein said diffraction grating cells are located at positions corresponding to the pixels. ( rejected for reasons set out under claims 9, 20 etc.)

### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are not persuasive because :

Applicants' first contention that in claims 9 and 20 "each cell comprising blazed type or binary type curved gratings having the same profile and arranged in parallel" is not persuasive these limitations was previously recited in claims 11, 22, 43 and 54 and those claims were previously rejected for Tanabe in col. 5 line 30-34, LCD layer and display co1.2 lines 56-62 and Col. 10 lines 63 to 67 describes each cell comprising

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blazed type or binary type curved gratings having the same profile and arranged in parallel”

With respect to claims 41 and 52 similarly Tanabe in col. 5 line 30-34, LCD layer and display co1.2 lines 56-62 and Col. 10 lines 63 to 67 describes “each cell comprising curved gratings having the same profile and arranged in parallel”

With respect to claim 61 similarly Tanabe in col. 5 line 30-34, LCD layer and display co1.2 lines 56-62 and Col. 10 lines 63 to 67 describes “each of the diffraction grating cells including at least one of blazed type and binary type grating have the same profile and arranged in parallel”.

Therefore all of the present recitation of independent claims 9,20,41,52 and 61 are taught by the applied references.

All dependent claims were alleged to be allowable because of their respective dependency upon allegedly allowable independent claims , however as shown above independent claims are not allowable and therefore dependent claims are also not allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (571) 272-1718. The examiner can normally be reached on 8.30-5.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1714. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Steven H. Rao

Patent Examiner

September 29, 2006.